CLAIMS

1   1. An optimization system for processing encoded video data, comprising:

2   a frame analysis system that determines if a current video frame having an

3   overlaid area acts as a reference for future video frames; and

4   a system for identifying a skippable region in the overlaid area.

1   2. The optimization system of claim 1, wherein the frame analysis system examines a

2   picture type of the current video frame, and wherein the identification system identifies

3   the entire overlaid area as the skippable region if the current video frame comprises a B

4   picture.

1   3. The optimization system of claim 1, wherein the frame analysis system examines a

2   sequence of video frames, and wherein the identification system identifies the entire

3   overlaid area as the skippable region if none of the sequence of video frames acts as

4   reference frames.

1   4. The optimization system of claim 1, further comprising a motion vector analysis

2   system that calculates a motion vector range for the current video frame.

1   5. The optimization system of claim 4, wherein the skippable region comprises the

2   overlaid area less an area defined by the motion vector range.

1 6. The optimization system of claim 1, further comprising a motion vector analysis

2 system that examines motion vectors in a predicted frame that references the current

3 video frame in order to identify prediction macroblocks in the overlaid area of the current

4 video frame.

1 7. The optimization system of claim 6, wherein the skippable region comprises the

2 overlaid area less the prediction macroblocks identified in the overlaid area of the current

3 video frame.

1 8. The optimization system of claim 6, wherein the predicted frame includes the overlaid

2 area, and wherein the motion vector analysis system does not examine motion vectors in

3 the overlaid area of the predicted frame.

1 9. The optimization system of claim 1, further comprising a system for examining side

2 information in the encoded video data.

1 10. The optimization system of claim 1,

2   wherein the frame analysis system determines a plurality of predicted frames that

3 reference the current video frame;

4   wherein the identification system identifies a plurality of skippable regions; and

5   wherein a final skippable region is determined as a cross set of each of the

6 identified skippable regions.

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1   11. The optimization system of claim 1, further comprising a decoder for decoding the

2   encoded video data.

1   12. The optimization system of claim 11, wherein the skippable region is utilized by a

2   component of the decoder to reduce computational complexity.

1   13. The optimization system of claim 12, wherein the component is selected from the

2   group consisting of: an inverse scanning/inverse quantization system, an inverse discrete

3   cosine transform system, a motion compensation system, and a residual adding system.

1   14. A program product, stored on a recordable medium, that when executed processes

2   encoded video data, the program product comprising:

3   means for determining if a current video frame having an overlaid area acts as a

4   reference for future video frames; and

5   means for identifying a skippable region in the overlaid area.

1   15. The program product of claim 14, further comprising means for calculating a motion

2   vector range for a predicted frame that references the current video frame.

1   16. The program product of claim 15, wherein the skippable region comprises the

2   overlaid area less an area defined by the motion vector range.

1   17. The program product of claim 14, further comprising means for examining motion

2   vectors in a predicted frame that references the current video frame to identify prediction

3   macroblocks in the current video frame.

1   18. The program product of claim 17, wherein the skippable region comprises the

2   overlaid area less the identified prediction macroblocks identified in the overlaid area.

1   19. The program product of claim 14, further comprising means for examining side

2   information in the encoded video data.

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1   20.   A method of processing encoded video data, comprising the steps of:

2   determining if a current video frame having an overlaid area acts as a reference

3   for future video frames; and

4   identifying a skippable region in the overlaid area.

1   21. The method of claim 20, wherein the identifying step comprises the steps of:

2   calculating a motion vector range for a predicted frame that references the current

3   video frame; and

4   identifying the skippable region as comprising the overlaid area less an area

5   defined by the motion vector range.

1   22.   The method of claim 20, wherein the identifying step comprises the steps of:

2   examining motion vectors in a predicted frame that references the current video

3   frame to identify prediction macroblocks in the current video frame; and

4   identifying the skippable region as comprising the overlaid area less the

5   prediction macroblocks identified in the overlaid area.

1   23. The method of claim 20, wherein the determining step includes the step of:

2   examining side information in the encoded video data.

1   24. The method of claim 20, wherein the identifying step includes the step of:

2   examining side information in the encoded video data.